

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1-44. (Cancelled).

45. (Currently Amended) A method for analyzing immune system cycling to determine when an agent should be administered to a patient suffering from a disease characterized by the production of regulator cells, the method comprising

i) monitoring the patient, or samples obtained therefrom, for at least one of:

- a) effector cell numbers and/or activity,
- b) regulator cell numbers and/or activity,
- c) a molecule associated with the disease, and/or
- d) an immune system marker,

wherein the monitoring is conducted for a period of time that represents at least one cycle of the immune system,

ii) ~~analysing the results from step i) to detect cycling of the immune system, and understand the dynamics of the immune system cycling within the patient , and~~

iii) based on the cycling of the immune system, determining when the agent is to be administered, wherein the agent is to be administered when regulator cell numbers and/or activity are increasing in the cycle, and wherein the agent inhibits the production of, limits the function of, and/or destroys, regulator cells.

46. (Currently Amended) A method of treating a disease characterized by the production of regulator cells, the method comprising;

i) analyzing immune system cycling by monitoring a patient suffering from the disease, or samples obtained therefrom, for at least one of:

- a) number and/or activity of regulator cells,
- b) number and/or activity of effector cells,
- c) a molecule associated with the disease, and/or
- d) an immune system marker,

wherein the monitoring is conducted for a period of time that represents at least one cycle of the immune system,

ii) analysing the results from step i) to ~~detect cycling of the immune system, and understand the dynamics of the immune system cycling within the patient , and~~

iii) exposing the patient to an agent to treat the disease, wherein the agent is administered when regulator cell numbers and/or activity are increasing in the cycle, and wherein the agent inhibits the production of, limits the function of, and/or destroys, regulator cells.

47. **(Previously Presented)** The method of claim 45, wherein the disease characterized by the production of regulator cells is cancer or an infection.

48. **(Withdrawn)** The method of claim 45, wherein the patient is infected with HIV, Hepatitis B virus or Hepatitis C virus.

49. **(Previously Presented)** The method of claim 45, wherein the immune system marker reflects the number and/or activity of regulator cells, and/or the number and/or activity of effector cells.

50. **(Previously Presented)** The method of claim 45, wherein the immune system marker is an acute phase inflammatory marker.

51. **(Cancelled)**

52. **(Withdrawn)** The method of claim 46, wherein the agent is administered about when CD4+CD8- T cells are detected.

53. **(Withdrawn)** The method of claim 46, wherein the agent is administered approximately when CD8+CD4- T cell numbers have peaked.

54. **(Withdrawn)** The method of claim 46, wherein the molecule associated with the disease is an antigen produced by a cancer cell or an infectious agent.

55. **(Withdrawn)** The method of claim 46, wherein the agent is administered approximately when levels of the molecule associated with the disease begin to decrease.

56. **(Withdrawn)** The method of claim 46, wherein the patient is monitored for an acute phase inflammatory marker, and a molecule associated with the disease.

57. **(Cancelled)**

58. **(Previously Presented)** The method of claim 45, wherein the patient is monitored for a period of at least 21 days.

59. **(Previously Presented)** The method of claim 45, the patient is monitored at least about every 3 days.

60. **(Cancelled)**

61. **(Previously Presented)** The method of claim 45, wherein the patient has not been exposed to a treatment for the disease for at least 21 days.

62. **(Previously Presented)** The method of claim 45, wherein the patient is a human.

63. **(Withdrawn - Currently Amended)** A method for analysing immune system cycling to diagnose a disease characterized by the production of regulator cells, the method comprising

i) monitoring the patient, or samples obtained therefrom, for at least one of:

- a) effector cell numbers and/or activity,
- b) regulator cell numbers and/or activity,
- c) a molecule associated with the disease, and/or
- d) an immune system marker, and

wherein the monitoring is conducted for a period of time that represents at least one cycle of the immune system,

ii) analysing the results from step i) to ~~detect cycling of the immune system, and understand the dynamics of the immune system cycling within the patient~~

~~ii) analysing the results from step i) to detect cycling of the immune system, wherein cycling of any one of a) to d) indicates the disease may be is present.~~

64. **(Withdrawn-Currently Amended)** A method for analysing immune system cycling to determine when a vaccine should be administered to a patient suffering from a disease characterized by the production of regulator cells, the method comprising

i) monitoring the patient, or samples obtained therefrom, for at least one of:

- a) effector cell numbers and/or activity,
- b) regulator cell numbers and/or activity,
- c) a molecule associated with the disease, and/or
- d) an immune system marker,

wherein the monitoring is conducted for a period of time that represents at least one cycle of the immune system,

ii) ~~analysing the results from step i) to detect cycling of the immune system, and understand the dynamics of the immune system cycling within the patient , and~~

iii) based on the cycling of the immune system determining when the agent is to be administered, wherein the agent is to be administered when regulator cell numbers and/or activity are increasing in the cycle, and wherein the agent inhibits the production of, limits the function of, and/or destroys, regulator cells.

65. **(Withdrawn-Currently Amended)** A method of treating a disease characterized by the production of regulator cells, the method comprising;

i) analysing immune system cycling by monitoring a patient suffering from the disease, or samples obtained therefrom, for at least one of:

- a) number and/or activity of regulator cells,
- b) number and/or activity of effector cells,
- c) a molecule associated with the disease, and/or
- d) an immune system marker, ~~and~~

wherein the monitoring is conducted for a period of time that represents at least one cycle of the immune system,

ii) ~~analysing the results from step i) to detect cycling of the immune system, and understand the dynamics of the immune system cycling within the patient , and~~

iii) exposing the patient to a vaccine to treat the disease, wherein the agent is administered when regulator cell numbers and/or activity are increasing in the cycle, and wherein the agent inhibits the production of, limits the function of, and/or destroys, regulator cells.

66-75. **(Cancelled)**